

DEEP MYCOSES IN WEST AFRICA: A REPORT OF 13 CASES AND REVIEW OF THE NIGERIAN LITERATURE

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Thirteen cases of deep mycoses were found among 12,506 new patients attending two University clinics in Northern Nigeria. Patients with chromoblastomycosis due to *Cladosporium carrionii*, paracoccidioidomycosis, rhinophycomycosis, and sporotrichosis appear to be the first cases of these conditions recognized in the Savanna region of West Africa. The literature on systemic mycoses in Nigeria is reviewed and a need for a greater awareness of the problem is stressed.

In spite of the fact that the skin is the most commonly involved organ in deep mycoses, patients with these conditions constitute only a very small proportion of African dermatological patients¹⁻³ and the largest series of cases have been reported by pathologists.

The purpose of this paper is to report cases of deep mycoses which have been diagnosed in the

two skin clinics in the Savanna region in northern Nigeria and to review other reports on deep fungal infections from Nigeria.

MATERIAL AND METHODS

Nigeria is situated in West Africa between latitudes 4 and 14 degrees of the Equator. It falls into two great regions, the northern Savanna and the forest belt which covers much of the South. Its climate varies from tropical with high humidity at the coast, through subtropical further inland, to dry with extremes of temperature rising sometimes as high as 43 C and falling to 10 C in the far North.

Zaria lies in the center of Northern Nigeria at an altitude of about 675 meters. The tropical climate is hotter in April; the rainy season lasts from May to September and mean annual rainfall is 1,075 mm. Kaduna lies 80 km south of Zaria and is at a slightly lower altitude. There is a slightly higher annual rainfall, but the temperature range is about the same as for Zaria.

Regular skin clinics were held in Ahmadu Bello University Hospital in Zaria and Kaduna. Thirteen patients with deep mycoses were found among 12,506 new patients attending these clinics in the period May 1974 to December 1979.

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TABLE 1. CLINICAL DATA ON PATIENTS WITH DEEP MYCOSES

Case No.	Clinical Diagnosis and Fungal Agent	Patient's Sex, Age, Occupation, and Tribe	Place of Living	Clinical Details
1.	Mycetoma Str pelletieri culture and biopsy	Male, 22, photographer, Hausa	Kaduna town	Anterior aspect of the chest, lesions confined to skin and subcutis
2.	Mycetoma Str pelletieri biopsy	Male, 55, farmer, Hausa	Village remote area Central- North Nigeria	Typical foot location "Madura foot"
3.	Mycetoma Nocardia sp culture	Male, 25, farmer, Hausa	Village near to hospital	Anterior aspect of the chest, lesions only in skin and subcutis
4.	Chromoblastomycosis Cladosporium carr culture and biopsy	Male, 28, farmer, Hausa	Village far North Nigeria	Warty lesions on right lower leg Good effect of 5-FC
5.	Chromoblastomycosis Phialophora pedr culture and biopsy	Male, 60, farmer, Igala	Village in the middle belt, Oturkpo area	Warty, scaly, tuberculosis-like long lasting lesions on one leg
6.	Rhinophycomycosis Entomophthora cor culture	Male, 12, village boy, Hausa	Remote village Central- North Nigeria	Typical presentation Swelling of the tissues of the nose, cheek, and upper lip. Nasal obstruction
7.	Rhinophycomycosis Entomophthora cor culture	Male, 40, farmer, Igbo	South, Enugu area	Typical presentation as case 6
8.	Subcutaneous phycomycosis Basidiobolus ranar culture	Male, 24, farmer, Hausa	Southern border of the Savanna	Firm swellings of the subcutaneous tissues on face and abdomen. Effect of potassium iodide
9.	African histoplasmosis Histoplasma Dubois culture and biopsy	Female, 35, Fulani	Member of a wandering pastoralist tribe	Disseminated papulo-nodular lesions, only skin is affected
10.	African histoplasmosis Histoplasma Dubois culture and biopsy	Male, 22, farmer	Village in the middle belt	Disseminated skin papulo-nodular lesions. Affection of bones and oral cavity. Effect of amphotericin B and rifampin
11.	Sporotrichosis Sporotrichum Schen culture	Male, 45, Fulani, Herdsman	Member of a wandering tribe	Cutaneous-lymphatic lesions on left upper arm
12.	Sporotrichosis Sporotrichum Schen culture	Male, 21, farmer, Hausa	Remote village Central-North Nigeria	Cutaneous-lymphatic lesions on right upper limb
13.	Paracoccidioidomycosis Paracoccidioides bras Culture and biopsy	Female, 35, Hausa	Far North, North of Kano	Swollen infiltration eroded lips. No visceral affection

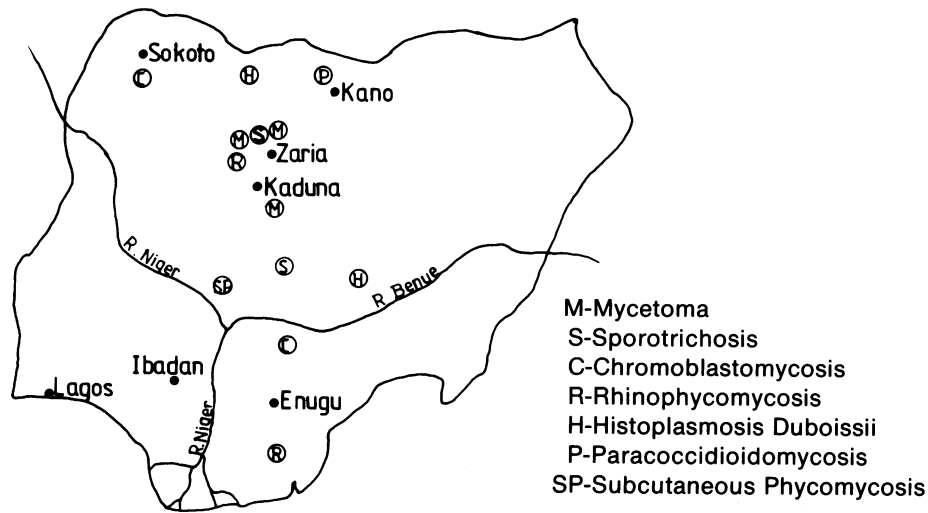


Figure 1. Map of Nigeria showing geographical distribution of patients

RESULTS AND DISCUSSION

Table 1 presents clinical data of all 13 patients and Figure 1 shows a map of Nigeria and the geographic distribution of the patients.

Mycetoma

Mycetoma was observed three times, in two patients lesions were located in the chest (Figure 2) and a typical pedal location was observed in the other (Figure 3). All three patients had lived their whole life in Northern Nigeria. In contrast to the large number of cases of mycetoma found in Senegal⁴ or in East Africa,^{5,6} this condition has rarely been reported in Nigeria and in the majority of cases the causative fungi were not identified. Onuigbo and Gugnani⁷ reported five cases from Eastern Nigeria. *Madurella mycetomi* and *Nocardia* species were each identified in two patients and in the fifth patient, the fungus was not identified. In two of our patients *Streptomyces pelletieri* was the causative agent (Figure 4); the third was due to a *Nocardia* species. Climatic conditions appear to be the main factors determining the distribution of the fungi and the conditions in the Savanna region of Northern Nigeria seem to be favorable for the "red fungus." The largest series of mycetoma caused by *Streptomyces pelletieri* was reported from another West African country, Senegal.⁴



Figure 2. Case 1, Mycetoma on the anterior aspect of the chest

Chromoblastomycosis

Chromoblastomycosis seems to be uncommon in Nigeria as only five cases, all caused by *Phialophora pedrosoi*, have been described.^{8,9} All these patients were described in the South of Nigeria and interestingly, our patient with lesions due to this fungus (Figure 5) came from the area close to rain forests. The other patient, whose lesions were caused by *Cladosporium carrionii*, comes from Sokoto region in the arid far North of the country. He seems to represent the first culturally proven case caused by this fungus south of the Sahara and is described in detail elsewhere.¹⁰ In this case, 5-fluorocytosine was very successful, resulting in a prompt response and a long relapse-free period exceeding five years.



Figure 3. Case 2, Mycetoma of the foot

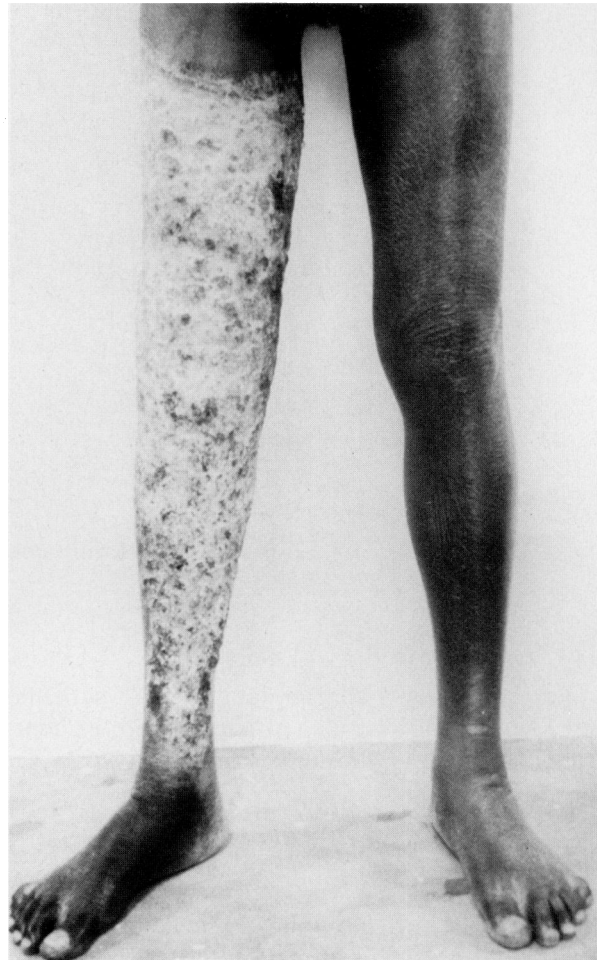


Figure 5. Case 5, Chromoblastomycosis

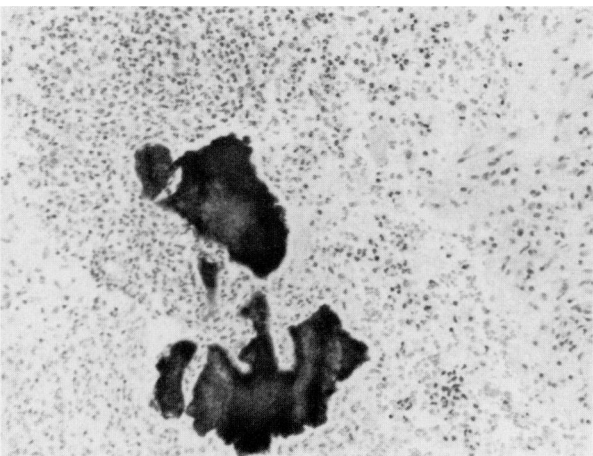


Figure 4. Case 1, Mycetoma—*Streptomyces pelletieri* in biopsy (HE)

Rhinophycomycosis

Both patients, documented by culture, presented with clinically typical pictures. All 14 Nigerian cases of rhinophycomycosis reported by Clark¹¹ and the three cases reported by Onuigbo and Gugnani⁷ lived in the lowland region of the tropical rain forest of southern Nigeria. *Entomophthora coronata* grows in moist decaying vegetation; this may explain the prevalence of the condition in the areas where such vegetation occurs. One of our patients, case 6 (Figure 6), a boy of 12, who came from a remote village in the Zaria district of Northern Nigeria, appears to be the first patient with rhinophycomycosis found in the Savanna.

Subcutaneous Phycomycosis

Only one patient with this infection was observed. The largest Nigerian series are those of Clark,¹¹ comprising nine cases, and Harman et al,¹² who described five patients. Both groups of patients were observed in southwest Nigeria in Ibadan. Onuigbo and Gugnani⁷ reported two cases from the Southeast. Our patient came from the area of the country where climatic conditions do not differ significantly from those in Ibadan.

African Histoplasmosis

The incidence of African histoplasmosis appears to depend less on the climatic conditions than phycomycoses. The largest series was reported from Southwest (52 patients of Lucas from Ibadan¹³) but there are reports on this condition from the far North.¹⁴

Two patients in the present authors' study presented with widespread nodulopapular skin eruptions. In addition, patient number 10 also had disseminated bone lesions with involvement of the right scapula, the left tibia, lower end of the left femur, and several bones of the skull. An interesting feature in this case was the affection of the mucosa of the oral cavity with the formation of a dome-shaped nodular lesions on the gingivae (Figure 7). Mucosal lesions in African histoplasmosis only rarely have been described.^{15,16} A good therapeutic response was obtained in this case with a combined therapy of amphotericin B and Rifampin.

The second patient, a Fulani female from the far North of the country with lesions confined to the skin, absconded before the effect of therapy could be observed.

Sporotrichosis

In Africa, apart from the well-known South African gold mine epidemic of 1945, there is almost no sporotrichosis. Ross and Gelfand¹⁷ found only three cases of sporotrichosis in a ten-year survey of histopathological material in Rhodesia and Shrank and Harman¹ observed one case in southwest Nigeria. Both our patients presented with the cutaneous-lymphatic form of the disease with primary lesions on the wrist or in the lower forearm and an ascending chain of swollen and suppurating lymph nodes (Figure 8).



Figure 6. Case 6, Rhinophycomycosis

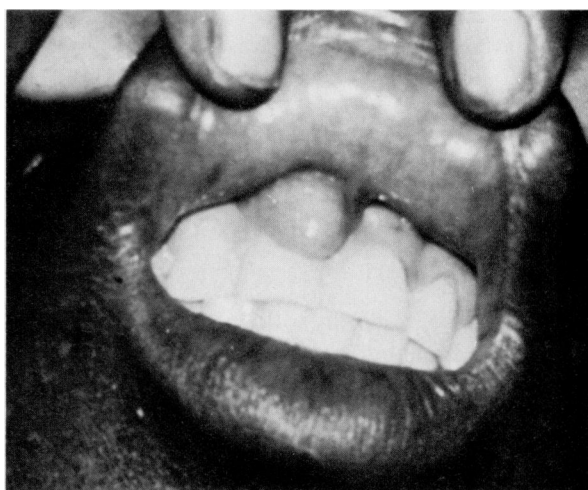


Figure 7. Case 10, African histoplasmosis. Nodule on the gum

Paracoccidioidomycosis

The only case of paracoccidioidomycosis is described in detail elsewhere.¹⁸ A 35-year-old Hausa female from Kano area presented with infiltrated and enormously enlarged and unevenly eroded lips with regional adenopathy. No visceral affection was found. *Paracoccidioides brasiliensis* was cultured and characteristic spherule budding cells were also found in sections taken from the lip and from a cervical lymph node. There is only one



Figure 8. Case 12, Sporotrichosis

previous description of paracoccidioidomycosis from Africa, a postmortem report on pulmonary lesions in a four-year-old Ghanaian girl.¹⁹

SUMMARY AND CONCLUSION

A variety of deep mycotic infections have been observed and all patients presented with extensive and long lasting lesions. It seems that in tropical Africa patients with less advanced and less conspicuous lesions either do not attend the Western-style health service or are misdiagnosed and missed. The correct and early diagnosis by which specific treatment can be offered, often with rapid recovery, requires an increasing awareness of the problem and the availability of proper laboratory facilities.

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FIRST ANNUAL COSMETIC PLASTIC SURGERY WORKSHOP

The National Medical Association is sponsoring the first annual workshop on the cosmetic plastic surgery of nonwhite patients. Topics to be included are face-lifts, brow-lifts, blepharoplasty, hair transplants, dermabrasion, chemical peel, chin augmentation, keloid and scar revision, and body contour surgery.

Faculty on the workshop will include James Reginald Benjamin, MD, Assistant Chief of Plastic Surgery Service, Walter Reed Army Medical Center; Rene Earles, MD, Chief, Division of Dermatology, Mt. Sinai Hospital, Chicago; Macy Hall, MD, Chief, Department of

Plastic and Reconstructive Surgery, Howard University; Lawrence M. Irebulem, MD, Enugu, Nigeria; Thomas C. Jones, MD, Clinical Assistant Professor of Ophthalmology, University of Maryland Medical School; A. Paul Kelly, MD, Chairman, Division of Dermatology, King/Drew Medical Center, California; Earl D. R. Kidwell, MD, Assistant Professor, University of Maryland, Johns Hopkins University; Ivens C. LeFlore, MD, Assistant Professor of Surgery, Howard University; Harold E. Pierce, MD, Clinical Associate Professor of Dermatology, Howard University College of Medicine; Arthur J. Sumrall,

MD, Clinical Instructor of Dermatology, Indiana University; Dr. Napoleon N. Vaughn, Licensed Psychologist, private practice, Philadelphia; and Joseph Williams, MD, Department of Plastic Surgery, Parkland Hospital, Dallas.

The workshop, which will be held at the Atlanta Hilton Hotel in Atlanta, Georgia, is planned for July 18-19, 1981. The registration fee for members is \$100 and for nonmembers \$175. For additional information, please contact the chairman of the workshop, Dr. Harold E. Pierce, 301 City Line Avenue, Bala Cynwyd, Pennsylvania at (215) 667-2636.

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